

What is claimed is:

1. A method for processing a urethane resin, comprising the step of adding to a urethane resin a decomposing agent that contains at least one functional group selected from
5 the group consisting of a carboxyl group ($-\text{COOH}$), and a salt of the carboxyl group, an ester of the carboxyl group and an acid anhydride of the carboxyl group ($-\text{CO}-\text{O}-\text{CO}-$).
2. The method according to claim 1, wherein the decomposing agent is added in an amount that provides 0.1
10 to 3 equivalents of the functional group for each equivalent of isocyanate group present in the urethane resin.
3. The method according to claim 1, wherein the decomposing agent is an anhydride of a polycarboxylic acid.
- 15 4. The method according to claim 3, wherein the decomposing agent is at least one selected from the group consisting of phthalic anhydride, methyltetrahydrophthalic anhydride, hexahydrophthalic anhydride, and succinic anhydride.
- 20 5. A method for processing a urethane resin, comprising the step of adding to a urethane resin a decomposing agent containing at least one functional group selected from the group consisting of an isocyanate group ($-\text{NCO}$) and an epoxy group, the decomposing agent being added in an amount that
25 provides 0.1 to 2 equivalents of the functional group for

each equivalent of isocyanate group present in the urethane resin.

6. The method according to claim 1, wherein the decomposing agent further contains at least one hydroxyl group.

7. The method according to claim 2, wherein the decomposing agent further contains at least one hydroxyl group.

8. The method according to claim 5, wherein the decomposing agent further contains at least one hydroxyl group.

9. The method according to claims 1, wherein the urethane resin and the decomposing agent are mixed under pressurized and heated condition.

10. The method according to claims 2, wherein the urethane resin and the decomposing agent are mixed under pressurized and heated condition.

11. The method according to claims 5, wherein the urethane resin and the decomposing agent are mixed under pressurized and heated condition.

12. A decomposed substance of a urethane resin characterized in that it is produced by decomposing a urethane resin by adding to the urethane resin any one of a decomposing agent that contains at least one functional group selected from the group consisting of a carboxyl group (-COOH), a salt of the carboxyl group, an ester of

the carboxyl group and an acid anhydride group of the carboxyl group (-CO-O-CO-), and a decomposing agent that contains at least one functional group selected from the group consisting of an isocyanate group (-NCO) and an epoxy group.

13. The urethane decomposed substance according to claim 12, wherein the decomposing agent is an anhydride of a polycarboxylic acid.

14. The urethane decomposed substance according to claim 13, wherein the decomposing agent is at least one selected from the group consisting of phthalic anhydride, methyltetrahydrophthalic anhydride, hexahydrophthalic anhydride, and succinic anhydride.

15. A method for producing a recycled resin, comprising the steps of adding to a urethane resin any one of a decomposing agent that contains at least one functional group selected from the group consisting of a carboxyl group (-COOH), and a salt of the carboxyl group, an ester of the carboxyl group and an acid anhydride of the carboxyl group (-CO-O-CO-), and a decomposing agent that contains at least one functional group selected from the group consisting of an isocyanate group (-NCO) and an epoxy group to thereby decompose the urethane resin; and reacting the resultant decomposed substance of the urethane resin with a compound that contains at least one functional group

selected from the group consisting of an epoxy group and an isocyanate group.

16. The method according to claim 15, wherein the decomposing agent is an anhydride of a polycarboxylic acid.

5 17. The method according to claim 16, wherein the decomposing agent is at least one selected from the group consisting of phthalic anhydride, methyltetrahydrophthalic anhydride, hexahydrophthalic anhydride, and succinic anhydride.

10 18. A recycled resin characterized in that it is produced by adding to a urethane resin any one of a decomposing agent that contains at least one functional group selected from the group consisting of a carboxyl group ($-\text{COOH}$) and a salt of the carboxyl group, an ester of the carboxyl group
15 and an acid anhydride ($-\text{CO}-\text{O}-\text{CO}-$) of the carboxyl group, and a decomposing agent that contains at least one functional group selected from the group consisting of an isocyanate group ($-\text{NCO}$) and an epoxy group; and then reacting the resultant decomposed substance of the urethane
20 resin with a compound that contains at least one functional group selected from the group consisting of an epoxy group and an isocyanate group.

19. The recycled resin according to claim 18, wherein the decomposing agent is an anhydride of a polycarboxylic acid.

25 20. The recycled resin according to claim 19, wherein the

decomposing agent is at least one selected from the group consisting of phthalic anhydride, methyltetrahydrophthalic anhydride, hexahydrophthalic anhydride, and succinic anhydride.